ACADEMIC SESSION : 2023-24

Discipline : Electrical Engineering	Semester : 5th	Name of the Teaching Faculty : Tilu Behera
Subject : Digital Electronics & Microprocessor	No. of days / week class allotted	Semester From date: 01/08/23 to 30/11/2023 Nos. of Weeks per semester : 15
Week	**Class Day**	**Theory/ Practical Topics**
1ST	1st	Binary, Octal, Hexadecimal number systems
	2nd	CompareBinary, Octal, Hexadecimal number systems with Decimal system
	3rd	Binary addition, subtraction
	4th	Binary Multiplication and Division.
	5th	1's complement and 2's complement numbers for a binary number
2ND	1st	Subtraction of binary numbers in 2's complement method.
	2nd	Use of weighted and Un-weighted codes
	3rd	write Binary equivalent number for a number in 8421, Excess-3 and Gray Code and vice-versa.
	4th	Importance of parity Bit.
	5th	Logic Gates: AND, OR, NOT, NAND, NOR and EX-OR gates with truth table.
3RD	1st	Realize AND, OR, NOT operations using NAND, NOR gates.
	2nd	Different postulates and De-Morgan's theorems in Boolean algebra.
	3rd	Use Of Boolean Algebra For Simplification Of Logic Expression
	4th	Karnaugh Map For 2,3,4 Variable
	5th	Simplification Of SOP And POS Logic Expression Using K-Map
4TH	1st	Give the concept of combinational logic circuits
	2nd	Half adder circuit and verify its functionality using truth table.
	3rd	Realize a Half-adder using NAND gates only and NOR gates only.
	4th	Full adder circuit and explain its operation with truth table.
	5th	Realize full-adder using two Half-adders and an OR – gate and write truth table
5TH	1st	Full subtractor circuit and explain its operation with truth table.
	2nd	Operation of 4 X 1 Multiplexers
	3rd	Operation of 1 X 4 Demultiplexer
	4th	Working of Binary-Decimal Encoder
	5th	Working of 3 X 8 Decoder.
6TH	1st	Working of Two bit magnitude comparator.
	2nd	Give the idea of Sequential logic circuits.
	3rd	State the necessity of clock and give the concept of level clocking and edge triggering,
	4th	Clocked SR flip flop with preset and clear inputs.
	5th	Construct level clocked JK flip flop using S-R flip-flop and explain with truth table
7TH	1st	Concept of race around condition and study of master slave JK flip flop.
	2nd	Give the truth table of edge triggered D flip flop and draw it's symbol.
	3rd	Give the truth table of edge triggered Tflip flop and draw it's symbol.
	4th	Applications of flip flops.
	5th	Define modulus of a counter

8TH	1st	3-bit asynchronous counter and its timing diagram.
	2nd	4-bit asynchronous counter and its timing diagram.
	3rd	Asynchronous decade counter.
	4th	4-bit synchronous counter.
	5th	Distinguish between synchronous and asynchronous counters.
9TH	1st	State the need for a Register and list the four types of registers.
	2nd	Working of SISO Register with truth table using flip flop.
	3rd	Working of SIPO Register with truth table using flip flop.
	4th	Working of PISO Register with truth table using flip flop.
	5th	Working of PIPO Register with truth table using flip flop.
10TH	1st	Introduction to Microprocessors, Microcomputers
	2nd	Architecture of Intel 8085A Microprocessor and description of each block.
	3rd	Architecture of Intel 8085A Microprocessor and description of each block.
	4th	Pin diagram and description.
	5th	Pin diagram and description.
11TH	1st	Stack, Stack pointer & stack top
	2nd	Interrupts
	3rd	Opcode & Operand,
	4th	Differentiate between one byte, two byte & three byte instruction with example.
	5th	Instruction set of 8085 example
12th	1st	Instruction set of 8085 example
	2nd	Addressing mode
	3rd	Addressing mode
	4th	Fetch Cycle, Machine Cycle, Instruction Cycle, T-State
	5th	Timing Diagram for memory read, memory write
13th	1st	Timing Diagram for I/O read, I/O write
	2nd	Timing Diagram for 8085 instruction
	3rd	Problems on Timing Diagram for 8085 instruction
	4th	Counter and time delay.
	5th	Simple assembly language programming of 8085
14th	1st	Question Discussion
	2nd	Question Discussion
	3rd	Question Discussion
	4th	Basic Interfacing Concepts, Memory mapping & I/O mapping
	5th	Functional block diagram and description of each block of Programmable peripheral interface Intel 8255
15th	1st	Application using 8255: Seven segment LED display
	2nd	Application using 8255: Square wave generator
	3rd	Application using 8255: Traffic light Controller
	4th	Question Discussion
	5th	Question Discussion

Behera 31/07/2023
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31.07.23
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